



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,700	04/26/2005	W Novis Smith	1410P	8739
Zachary T. Wobensmith, III 7746 101st Court Vero Beach, FL 32967-2871				
EXAMINER				
WEINER, LAURA S				
ART UNIT		PAPER NUMBER		
1795				
MAIL DATE		DELIVERY MODE		
08/28/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/532,700

**Applicant(s)**

SMITH ET AL.

**Examiner**

/Laura S. Weiner/

**Art Unit**

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☒ Claim(s) 7-8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed 5-27-08 have been fully considered but they are not persuasive. Applicant argues that Holman et al. is directed to electrodes, particularly to coated electrodes while the present invention is directed to separators. Holman et al. teaches an electrolyte material may be a solid polymer electrolyte such as PEO or other solid, gel or liquid electrolyte known in the art. A nonlimiting example of a binder and liquid electrolyte is PVDF and EC:DMC with a lithium salt. In some embodiments the electrolyte includes organic materials such as PEO, PAN, PVDF, etc. The lithium salt can be LiPF<sub>6</sub>, LiBF<sub>4</sub>, etc. and the electrolyte can also include inorganic materials such as LiF, LiCl, Li<sub>2</sub>O-B<sub>2</sub>O<sub>3</sub>-Bi<sub>2</sub>O<sub>3</sub>. Also, the electrolyte can comprise a sol or gel of the oxides of Ti, Zr, Pb, Bi, Mo, W, Si, Ge, Al, B or P. Holman et al. teaches an electrochemical device comprising a first electrode, a second electrode, and an electrolyte. Holman et al. teaches that the cathode comprises LiCoO<sub>2</sub>, LiNiO<sub>2</sub>, etc. and the anode comprises carbon, Li, etc. In addition, Holman et al. teaches in Table 1, that Material 2 (separator/electrolyte) can be PEO, PEG, PS, PAN, etc. Therefore claims 1-6 remain rejected under 35 U.S.C. 102(e) as being anticipated by Holman et al. (7,087,348).

Applicant argues that Nakahara et al. is directed to an electricity storage device and does not disclose the ionically conductive solid compound of applicants as an additive to separators to improve ionic conductivity. Nakahara et al. teaches a solid electrolyte which includes polyvinylidene fluoride and hexafluoropropylene, etc. in which

these polymer materials may be used as a gel containing an electrolyte solution or only polymer materials are used. Examples of an inorganic solid electrolyte include  $\text{CaF}_2$ ,  $\text{LiF}_2$ , etc. The electrolyte may be an electrolyte solution comprising an electrolyte salt and a solvent. The electrolyte salt can be  $\text{LiPF}_6$ ,  $\text{LiBF}_4$ , etc. Therefore claims 1-6 remain rejected under 35 U.S.C. 102(e) as being anticipated by Nakahara et al. (7,226,697).

***Claim Rejections - 35 USC § 102***

2. Claims 1-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Holman et al. (7,087,348).

Holman et al. teaches in column 19, lines 19-51, an electrolyte material may be a solid polymer electrolyte such as PEO or other solid, gel or liquid electrolyte known in the art. A solid polymer electrolyte may serve as a binder. A nonlimiting example of a binder and liquid electrolyte is PVDF and EC:DMC with a lithium salt. In some embodiments the electrolyte includes organic materials such as PEO, PAN, PVDF, etc. The lithium salt can be  $\text{LiPF}_6$ ,  $\text{LiBF}_4$ , etc. and the electrolyte can also include inorganic materials such as  $\text{LiF}$ ,  $\text{LiCl}$ ,  $\text{Li}_2\text{O-B}_2\text{O}_3\text{-Bi}_2\text{O}_3$ . Also, the electrolyte can comprise a sol or gel of the oxides of Ti, Zr, Pb, Bi, Mo, W, Si, Ge, Al, B or P. Holman et al. teaches in column 30, claim 1, an electrochemical device comprising a first electrode, a second electrode, and an electrolyte. Holman et al. teaches in column 33, claims 36-37, that

the cathode comprises  $\text{LiCoO}_2$ ,  $\text{LiNiO}_2$ , etc. and the anode comprises carbon, Li, etc.

3. Claims 1-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakahara et al. (7,226,697).

Nakahara et al. teaches in column 9, lines 1-30, a solid electrolyte which includes polyvinylidene fluoride and hexafluoropropylene, etc. in which these polymer materials may be used as a gel containing an electrolyte solution or only polymer materials are used. Examples of an inorganic solid electrolyte include  $\text{CaF}_2$ ,  $\text{LiF}_2$ , etc. The electrolyte may be an electrolyte solution comprising an electrolyte salt and a solvent. The electrolyte salt can be  $\text{LiPF}_6$ ,  $\text{LiBF}_4$ , etc.

#### ***Allowable Subject Matter***

4. Claims 7-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to /Laura S. Weiner/ whose telephone number is 571-272-1294. The examiner can normally be reached on M-F (6:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number:  
10/532,700  
Art Unit: 1795

Page 6

/Laura S Weiner/  
Primary Examiner  
Art Unit 1795

August 22, 2008